

This listing of claims will replace all prior versions, and listings, of claims in the application:

- 1 Claim 1 (currently amended): A method for communicating at least two source signals
2 from a first location toward a second location, the method comprising:
3 a) generating a local oscillator signal for each of the at least two source signals;
4 b) selecting one or more signals from among the at least two source signals to
5 define one or more selected source signals;
6 c) separately mixing each of the one or more selected source signals with a
7 corresponding local oscillator signal to generate mixed selected signals;
8 d) combining the mixed selected signals to generate a transmission signal; and
9 e) transmitting the transmission signal towards the second location.

- 1 Claim 2 (original): The method of claim 1 further comprising:
2 - converting the transmission signal to an optical signal before transmitting the
3 transmission signal towards the second location.

- 1 Claim 3 (currently amended): The method of claim 1 wherein the ~~act~~ step of generating a
2 local oscillator signal for each of the at least two source signals includes:
3 i) ~~accepting a pilot carrier;~~
4 ii) generating a first local oscillator signal based on ~~the a~~ pilot carrier; and
5 iii) generating an n^{th} local oscillator signal by dividing the first local
6 oscillator signal by 2^{n-1} , where n is a whole number greater than one.

- 1 Claim 4 (original): The method of claim 3 wherein the pilot carrier has a frequency of
2 approximately 120 MHz.

- 1 Claim 5 (currently amended): The method of claim 3 wherein the act of generating a first
2 local oscillator signal based on the pilot carrier is performed by dividing the pilot carrier
3 by a ~~selected one of two and three~~ whole number greater than one and less than four.

1 Claim 6 (original): The method of claim 3 wherein the each of the local oscillator signals
2 has a square waveform.

1 Claim 7 (original): The method of claim 3 wherein the n^{th} local oscillator signal has less
2 noise than the $(n-1)^{\text{th}}$ local oscillator signal.

1 Claim 8 (original): The method of claim 3 wherein the one of the at least two source
2 signals associated with the n^{th} local oscillator signal requires less bandwidth than the one
3 of the at least two source signals associated with the $(n-1)^{\text{th}}$ local oscillator signal.

1 Claim 9 (currently amended): A method for communicating at least two source signals
2 from a first location to a second location, the method comprising:

- 3 a) generating a source local oscillator signal for each of the at least two source
4 signals;
5 b) selecting one or more signals from among the at least two source signals to
6 define one or more selected source signals;
7 c) separately mixing each of the one or more selected source signals with a
8 corresponding source local oscillator signal to generate mixed selected signals;
9 d) combining the mixed selected signals to generate a transmission signal;
10 e) transmitting the transmission signal to the second location;
11 f) receiving the transmitted transmission signal at the second location;
12 g) splitting the received transmission signal to generate ~~mixed~~ selected signals;
13 h) generating a destination local oscillator signal for each of the at least two
14 source signals;
15 i) separately demodulating each of the ~~mixed~~ selected signals using
16 corresponding ones of the destination local oscillator signals, to generate the
17 selected source signals.

1 Claim 10 (original): The method of claim 9 further comprising:
2 - converting the transmission signal to an optical signal before transmitting the
3 transmission signal towards the second location; and

- 4 - converting the received transmission signal to an electrical signal before
5 splitting it.

1 Claim 11 (currently amended): The method of claim 9 wherein the act of generating a
2 source local oscillator signal for each of the at least two source signals includes:

- 3 ~~i) accepting a pilot carrier;~~
4 ii) generating a first source local oscillator signal based on a the pilot
5 carrier; and
6 iii) generating an n^{th} source local oscillator signal by dividing the first
7 source local oscillator signal by 2^{n-1} ,

8 and wherein the act of generating a destination local oscillator signal for each of the at
9 least two source signals includes:

- 10 ~~i) accepting the pilot carrier;~~
11 ii) generating a first destination local oscillator signal based on the pilot
12 carrier; and
13 iii) generating an n^{th} destination local oscillator signal by dividing the first
14 destination local oscillator signal by 2^{n-1} ,

15 where n is a whole number greater than one.

1 Claim 12 (original): The method of claim 11 wherein the pilot carrier has a frequency of
2 approximately 120 MHz.

1 Claim 13 (original): The method of claim 9 wherein the source and destination local
2 oscillator signals are coherent.

1 Claim 14 (currently amended): A method for receiving at least two source signals,
2 transmitted from a first location, by a second location, the method comprising:

- 3 a) receiving a transmitted signal at the second location;
4 b) splitting the received signal to generate mixed selected signals;
5 c) generating a local oscillator signal for each of the at least two source signals;
6 and

7 d) separately demodulating each of the ~~mixed~~ selected signals using
8 corresponding ones of the second local oscillator signals, to generate the selected
9 source signals.

1 Claim 15 (currently amended): The method of claim 14, wherein the received
2 transmitted signal is an optical signal, the method further comprising:

3 - converting the received transmitted signal to an electrical signal before it is
4 split.

1 Claim 16 (currently amended): The method of claim 14 wherein the act of generating a
2 local oscillator signal for each of the at least two source signals includes:

3 ~~i) accepting a pilot carrier;~~
4 ii) generating a first local oscillator signal based on ~~the~~ a pilot carrier; and
5 iii) generating an n^{th} local oscillator signal by dividing the first local
6 oscillator signal by 2^{n-1} ,

7 where n is a whole number greater than one.

1 Claim 17 (original): The method of claim 16 wherein the pilot carrier has a frequency of
2 approximately 120 MHz.

1 Claim 18 (currently amended): The method of claim 16 wherein the act of generating a
2 first local oscillator signal based on the pilot carrier is performed by dividing the pilot
3 carrier by ~~selected one of two and three~~ whole number greater than one and less than
4 four.

1 Claim 19 (original): The method of claim 16 wherein the each of the local oscillator
2 signals has a square waveform.

1 Claim 20 (original): The method of claim 16 wherein the n^{th} local oscillator signal has
2 less noise than the $(n-1)^{\text{th}}$ local oscillator signal.

1 Claim 21 (original): The method of claim 16 wherein the one of the at least two source
2 signals associated with the n^{th} local oscillator signal requires less bandwidth than the one
3 of the at least two source signals associated with the $(n-1)^{\text{th}}$ local oscillator signal.

1 Claim 22 (currently amended): A transmitter for transmitting selected ones of at least
2 two source signals, the transmitter comprising:

- 3 a) an n-stage ripple counter for generating a local oscillator signal for each of the
4 at least two source signals;
5 b) a selector for selecting one or more signals from among the at least two source
6 signals to define one or more selected source signals;
7 c) a plurality of mixers, the plurality of mixers
8 i) having a first set of inputs coupled with the selector for accepting the
9 one or more selected source signals,
10 ii) having a second set of inputs coupled with the n-stage ripple counter
11 for accepting the local oscillator signals,
12 iii) being adapted to separately mix each of the selected source signals
13 with a corresponding one of the local oscillator signals to generate mixed
14 selected signals, and
15 iv) having a set of outputs for providing the mixed selected signals; and
16 d) an n-way combiner, the n-way combiner having a set of inputs coupled with
17 the set of outputs of the mixer, and being adapted to combine the mixed selected
18 signals to generate a transmission signal.

1 Claim 23 (original): The transmitter of claim 22 further comprising:

- 2 e) an electrical to optical converter, coupled with the n-way combiner and being
3 adapted to convert the transmission signal to an optical signal.

1 Claim 24 (currently amended): The transmitter of claim 22 wherein the ripple counter:

- 2 i) generates a first local oscillator signal based on a pilot carrier; and
3 ii) generates an n^{th} local oscillator signal by dividing the first local
4 oscillator signal by 2^{n-1} .

5 where n is a whole number greater than one.

1 Claim 25 (original): The transmitter of claim 24 wherein the pilot carrier has a frequency
2 of approximately 120 MHz.

1 Claim 26 (original): The transmitter of claim 24 wherein the ripple counter generates the
2 n^{th} local oscillator signal with less noise than the $(n-1)^{\text{th}}$ local oscillator signal.

1 Claim 27 (original): The transmitter of claim 24 wherein the one of the at least two
2 source signals associated with the n^{th} local oscillator signal requires less bandwidth than
3 the one of the at least two source signals associated with the $(n-1)^{\text{th}}$ local oscillator signal.

1 Claim 28 (currently amended): A receiver for receiving at least two source signals,
2 transmitted from a first location, the receiver comprising:

- 3 a) an n-way splitter, the n-way splitter
- 4 i) having an input for accepting a signal,
- 5 ii) being adapted to split the received signal to generate ~~mixed~~ selected
- 6 signals, and
- 7 iii) having a set of outputs for providing the ~~mixed~~ selected signals;
- 8 b) an n-stage ripple counter, the n-stage ripple counter
- 9 i) adapted to generate a local oscillator signal for each of the at least two
- 10 source signals, and
- 11 ii) having a set of outputs for providing the local oscillator signals; and
- 12 d) a plurality of mixers, the plurality of mixers
- 13 i) having a first set of inputs coupled with the set of outputs of the n-way
- 14 splitter,
- 15 ii) having a second set of inputs coupled with the set of outputs of the
- 16 n-stage ripple counter, and
- 17 iii) adapted to separately demodulate each of the ~~mixed~~ selected signals at
- 18 its first second of inputs using corresponding ones of the second local

19 oscillator signals at its second set of inputs, to generate the selected source
20 signals.

1 Claim 29 (currently amended): The receiver of claim 28 wherein the n-stage ripple
2 counter is adapted to:

- 3 i) generate a first local oscillator signal based on a pilot carrier; and
4 ii) generate an n^{th} local oscillator signal by dividing the first local
5 oscillator signal by 2^{n-1} ,

6 where n is a whole number greater than one.

1 Claim 30 (original): The receiver of claim 29 wherein the pilot carrier has a frequency of
2 approximately 120 MHz.

1 Claim 31 (original): The receiver of claim 29 wherein the each of the local oscillator
2 signals generated by the n-stage ripple counter has a square waveform.

1 Claim 32 (original): The receiver of claim 29 wherein n-stage ripple counter generates
2 the n^{th} local oscillator signal with less noise than the $(n-1)^{\text{th}}$ local oscillator signal.

1 Claim 33 (original): The receiver of claim 29 wherein the one of the at least two source
2 signals associated with the n^{th} local oscillator signal requires less bandwidth than the one
3 of the at least two source signals associated with the $(n-1)^{\text{th}}$ local oscillator signal.

1 Claim 34 (currently amended): A method for communicating at least two downstream
2 signals from a first location to a second location and for communicating at least two
3 upstream signals from the second location to the first location, the method comprising:
4 a) generating a downstream source local oscillator signal for each of the at least
5 two downstream signals;
6 b) selecting one or more signals from among the at least two downstream signals
7 to define one or more selected downstream signals;

- 8 c) separately mixing each of the one or more selected downstream signals with a
9 corresponding downstream source local oscillator signal to generate mixed
10 selected downstream signals;
11 d) combining the mixed selected downstream signals to generate a downstream
12 transmission signal;
13 e) transmitting the downstream transmission signal to the second location;
14 f) receiving the transmitted downstream transmission signal at the second
15 location;
16 g) splitting the received downstream transmission signal to generate ~~mixed~~
17 selected downstream signals;
18 h) generating a downstream destination local oscillator signal for each of the at
19 least two downstream signals;
20 i) separately demodulating each of the mixed selected downstream signals using
21 corresponding ones of the downstream destination local oscillator signals, to
22 generate the selected downstream signals;
23 j) generating an upstream source local oscillator signal for each of the at least two
24 upstream signals;
25 k) separately mixing each of the upstream signals with a corresponding source
26 upstream local oscillator signal to generate mixed upstream signals;
27 l) combining the mixed upstream signals to generate an upstream transmission
28 signal;
29 m) transmitting the upstream transmission signal to the first location;
30 n) receiving the transmitted upstream transmission signal at the first location;
31 o) splitting the received upstream transmission signal to generate ~~mixed~~ upstream
32 signals;
33 p) generating a upstream destination local oscillator signal for each of the at least
34 two upstream signals; and
35 q) separately demodulating each of the mixed upstream signals using
36 corresponding ones of the upstream destination local oscillator signals, to
37 generate the upstream signals.

1 Claim 35 (original): The method of claim 34 further comprising:
2 - converting the downstream transmission signal to a first optical signal before
3 transmitting the transmission signal towards the second location; and
4 - converting the upstream transmission signal to a second optical signal before
5 transmitting the transmission signal towards the first location,
6 wherein the first and second optical signals have different wavelengths.

1 Claim 36 (currently amended): The method of claim 34 wherein the act of generating a
2 downstream source local oscillator signal for each of the at least two downstream signals
3 includes:

- 4 ~~i) accepting a pilot carrier;~~
5 ii) -generating a first downstream source local oscillator signal by dividing
6 the a pilot carrier by a first number; and
7 iii) -generating an n^{th} downstream source local oscillator signal by dividing
8 the first downstream source local oscillator signal by 2^{n-1} ,

9 wherein the act of generating a downstream destination local oscillator signal for
10 each of the at least two source signals includes:

- 11 ~~i) accepting the pilot carrier;~~
12 ii) generating a first downstream destination local oscillator signal by
13 dividing the pilot carrier by the first number; and
14 iii) generating an n^{th} downstream destination local oscillator signal by
15 dividing the first downstream destination local oscillator signal by 2^{n-1} ,

16 wherein the act of generating an upstream source local oscillator signal for each
17 of the at least two upstream signals includes:

- 18 ~~i) accepting the pilot carrier;~~
19 ii) -generating a first upstream source local oscillator signal by dividing
20 the pilot carrier by a second number, the second number being different
21 from the first number; and
22 iii) generating an n^{th} upstream source local oscillator signal by dividing
23 the first upstream source local oscillator signal by 2^{n-1} , and

24 wherein the act of generating an upstream destination local oscillator signal for
25 each of the at least two upstream signals includes:

26 ~~i) accepting the pilot carrier;~~

27 ii) generating a first upstream destination local oscillator signal by
28 dividing the pilot carrier by the second number; and

29 iii) generating an n^{th} upstream destination local oscillator signal by
30 dividing the first upstream destination local oscillator signal by 2^{n-1} ,

31 where n is a whole number greater than one.

1 Claim 37 (original): The method of claim 36 wherein the pilot carrier has a frequency of
2 approximately 120 MHz.
